In the United States Patent and Trademark Office

In re Application of
Chen et al.
Patent No. : US 7,319,996 B2
Application. Serial No.: 10/001,644
Issue Date: Jan. 15, 2008
For : SYSTEM AND METHOD FOR PROVIDING A DATA WAREHOUSE IN ACCORDANCE WITH A VIRTUAL SCHEMA

REQUEST FOR CERTIFICATE OF CORRECTION

ATTN Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 11, 2011

To Whom It May Concern:

In reviewing the above-identified patent, a printing error was discovered therein requiring correction in order to complete our Office Records pertaining to above identified application.

The error noted is set forth on the attached copy of Form PTO/SB/44 in the manner required by the Office.

The changes requested herein are believed to have incurred through the fault of the applicant and therefore the required fee is to be deducted from our deposit account.

Accordingly, Applicant respectfully requests issuance of Certificate of Correction.

Respectfully Submitted,
Chen et al.

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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : US 7,319,996

APPLICATION NO.: 10/001,644

ISSUE DATE : Jan. 15, 2008

INVENTOR(S) : (1) Li-Wen Chen; (2) Juan J. Ortiz

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On col. 1, lines 12-16 of the Patent, please replace the paragraph regarding "U.S. Provisional Patent Application Ser. No. 60/116,016, entitled "Method and Apparatus for Processing Customer Data for OLAP Integration and Application Integration based on Reverse Star Schema," by Li-Wen Chen, filed Jan. 15, 1999." with the following paragraph:

"U.S. Provisional Patent Application Ser. No. 60/116,086, entitled "Method and Apparatus for Processing Customer Data for OLAP Integration and Application Integration based on Reverse Star Schema," by Li-Wen Chen, filed Jan. 15, 1999. The Patent is a continuation of and claims the benefit of U.S. Patent Application Ser. No. 09/306,677, entiled "Method for Providing a Reverse Star Schema Data Model," by Li-Wen Chen and Juan J. Ortiz, issued Apr. 23, 2002, as U.S. Pat. No. 6,377,934."

MAILING ADDRESS OF SENDER (Please do not use customer number below):

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SYSTEM AND METHOD FOR PROVIDING A DATA WAREHOUSE IN ACCORDANCE WITH A VIRTUAL SCHEMA

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims priority from the following U.S. Provisional Patent Application, the disclosure of which, including all appendices and all attached documents, is incorporated by reference in its entirety for all purposes:

U.S. Provisional Patent Application Ser. No. 60/116,016, entitled "Method and Apparatus for Processing Customer Data for OLAP Integration and Application Integration based on Reverse Star Schema," by Li-Wen Chen, filed Jan. 15, 1999. The Patent is a .....

The following commonly-owned applications, including this one, are related to each other and the others are hereby incorporated by reference in their entirety:

1. U.S. patent application Ser. No. 09/483,385, entitled "Method for Visualizing Information in a Data Warehousing Environment," by Li-Wen Chen, filed Jan. 13, 2000, pending;

2. U.S. patent application Ser. No. 09/483,386, entitled "System for Visualizing Information in a Data Warehousing Environment," by Li-Wen Chen, issued Feb. 28, 2006, as U.S. Pat. No. 7,007,029;

3. U.S. patent application Ser. No. 09/306,650, entitled "Apparatus for Providing a Reverse Star Schema Data Model," by Li-Wen Chen and Juan Ortiz, issued Jun. 25, 2002, as U.S. Pat. No. 6,411,961.

4. U.S. patent application Ser. No. 09/306,693, entitled "System for Providing a Reverse Star Schema Data Model," by Li-Wen Chen and Juan Ortiz, issued Mar. 26, 2002, as U.S. Pat. No. 6,363,353.

BACKGROUND OF THE INVENTION

The present invention relates generally to computer database systems, and specifically to methods for organizing information from one or more systems in a data warehousing environment.

Few could foresee the rapid development of computer technology just a few years ago. Computers now have a place in our homes, our offices, our schools and even the our briefcases and satchels. As computer automation continues to impact an ever increasing portion of our daily lives, governments, businesses and individuals have turned to database technology to help them manage the "information explosion" and the exponential proliferation of information that must be sorted, assimilated and managed on a continuing basis. One area of importance to the database design field is data model selection for database applications.

A data model represents the structure or organization of data stored in the database. It enables the use of data in certain forms and may limit the data being used in other forms. Different applications usually require different data models. Many different data models can exist, and they usually differ markedly from one another. Typically, database applications are customized to a particular data model of a particular database. Different database vendors base their products on different data models, adding to the confusion. Usually, these applications must be re-implemented for different databases, even though the functioning of the application remains the same.

Presently, database developers have turned to data warehousing technology to resolve often conflicting data management requirements. Traditional data warehousing approaches focus on decision support applications, which emphasize summarized information. While perceived advantages exist, an inherent disadvantage to these systems is that transaction details about the customer's identity are lost. Traditional approaches exhibit shortcomings when applied to applications such as customer data analysis. Customer data analysis is a decision support analysis that correlates data to customers' activities, events, transactions, status and the like. Summarized information usually loses the detail level of information about customer identity, limiting the usefulness of traditional data warehousing approaches in these types of applications.

What is needed is a method for providing a database that can be customized to fit individual user needs, yet also able to support data analysis applications.

SUMMARY OF THE INVENTION

According to the invention, techniques for organizing information from a variety of sources, including legacy systems, in a data warehousing environment are provided. In an exemplary embodiment, the invention provides a method for analyzing data from one or more data sources of an enterprise. The method provides a meta-model based technique for modeling the enterprise data. The enterprise is typically a business activity, but can also be other loci of human activity. Embodiments according to the invention can translate data from a variety of sources to particular database schema in order to provide organization to a data warehousing environment.

The method includes a variety of steps, such as providing a model for an enterprise. The model can be a meta model that describes at a high level the information used by the enterprise. Meta models can describe relationships between groups of entities in a data model. Entities in a data model can comprise particular data types, and the like. The enterprise can be a business activity, and/or the like. A step of forming a data organization from the model is also part of the method. The data organization can include data schema and the like. Data schema define aspects of the database, such as attributes, domains and parameters, and the like, to a database management system (DBMS). The method also includes creating one or more databases for containing the data. Translating data from one or more sources to the data organization is also part of the method. A step of incorporating data into the database is part of the method. The method can also include a step of performing analysis on the data in the database. Accordingly, the combination of these steps can provide an environment for analyzing information about customers, business processes and the like.

In another aspect of the present invention, techniques for data warehousing are provided. In a particular embodiment, the invention provides a method for creating a database for organizing information from one or more sources. Embodiments can organize the data in the database according to a data schema, such as a reverse star schema. A reverse star schema model comprises an identity element (e.g., core components, and the like) and one or more entities that describe classifications of data (e.g. customer classification components, and the like), which can have one or more relationships with the identity element. In an exemplary embodiment, customer classification components provide different ways to categorize customers or different business views of the customers, for example. For example, customers can be categorized by geographic region, demographics and the like. The method comprises a variety of steps